## What is claimed is:

Characterized by

automatically defining a region of interest in an image indicative of a predetermined feature of the person using an early vision cue; and

automatically finding the location of the predetermined feature in the defined region of interest using elastic bunch graph matching.

as defined in claim 1, characterized in that the step of defining the region of interest includes roughly locating the region of interest using the early vision cue and the step of finding the location of the predetermined feature commences at a rough location provided by the step of defining the region of interest.

20

5

3. A method for determining the state of a person as defined in claim 2, characterized in that the early vision cue includes at least one of stereovision, motion, color, convexity, topology, or structure.

Gray Cary\SD\1374111.1 103353-155895

443 RA



4. A method for determining the state of a person as defined in claim 3, characterized in that stereovision is used to produce disparity histograms and silhouette images.

5

5. A method for determining the state of a person as defined in claim 1, characterized in that the step of defining the region of interest includes background suppression.

10

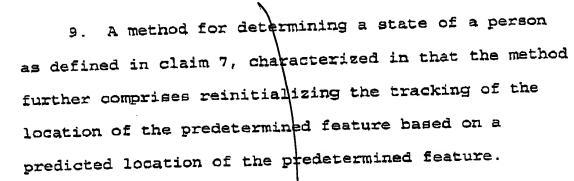
15

20

25

- 6. A method for determining the state of a person as defined in claim 1, characterized in that the predetermined feature is the person's face and the state of the person is described by nodes positions of facial elements.
  - 7. A method for determining a state of a person as defined in claim 1, characterized in that the image is in a sequence of images and the location of the predetermined feature is tracked in a subsequent image.
  - as defined in claim 7, characterized in that an erroneous location of the predetermined feature is corrected based on a model of typical facial features.

Grey Cary/SD\1374111.1 103353-155895



- 10. A method for feature sensing as defined in claim 9, characterized in that the reinitializing step is preformed using bunch graph matching.
- 11. A method for determining a state of a person, characterized in that the method further comprises using the location of the predetermined feature for animating a graphical head model.
  - of a person, characterized in that the state of the person determined by the method is the degree to which an eye is closed.

589

15



ಞಿಂದ ಧಾಟ್ ೭



13. Apparatus for determining a state of a person, characterized by:

means for automatically defining a region of interest in an image indicative of a predetermined 5 feature of the person using an early vision cue; and

23

means for automatically finding the location in an image of the predetermined feature in the defined region of interest using elastic bunch graph matching.